

# A Canary in the Coal Mine: Could Catatonia be a warning sign for COVID-19 infection? Anna Shapiro-Krew, MD, Andrew Coulter, MD, MA, Elias Khawam, MD, D.F.A.P.A., Vrashali Jain, MD, Adele Viguera, M.D.

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## Introduction

SARS-COV-2 (COVID-19) has led to the greatest pandemic in the past century and has resulted in loss of life for hundreds of thousands of individuals. Patients struggling with COVID-19 are increased risk for delirium due to factors such as CNS invasion, inflammatory mediators, organ failure, sedation, ventilation. Psychiatric symptoms of COVID-19 infection range widely, from hyperactivity and agitation, to catatonia and stupor.

Described Symptoms of COVID-19  Delirium	
Mutism	Agitation
Alogia	Confusion
Rigidity	Myoclonus
Abulia	Impulsivity
Rigidity	

Through the early stages of the pandemic, testing administration and processing lacked standardization due to the novel nature and scope of COVID-19. This led to false negative results in asymptomatic patients, who later became symptomatic with COVID-19 infection, despite PCR test.

# Case 1

- 61 year old male with HIV, DMII, HTN, dementia, bipolar disorder and schizophrenia admitted from nursing facility with altered mental status. On Haloperidol 10 mg three times a day, olanzapine 30 mg at bedtime and escitalopram 10 mg. Tested negative for COVID-19 by nasal swab.
- Appeared agitated with repetitive movements, posturing (holding his hands near his face, holding his breath and staring ahead). Yelled out "Help me!" Demonstrated waxy flexibility and automatic obedience. Underwent lorazepam trial of 2 mg QID IV, initially had limited improvement. Olanzapine was reduced to 10 mg at bedtime and haloperidol was reduced to 10 mg twice a day, eventually both stopped.
- Three days later was tested for COVID-19 again and was positive.
- Was tried on valproic acid with improvement (Max dose 500 mg TID)
- Died due to respiratory depression.

Case 1 Symptoms of Catatonia		
Excitable	Posturing	
Yelling out "help!"	Waxy flexibility	
Automatic obedience	Gegenhalten	
Verbigeration	Impulsivity	
Rigidity	Violence	

# Case 2

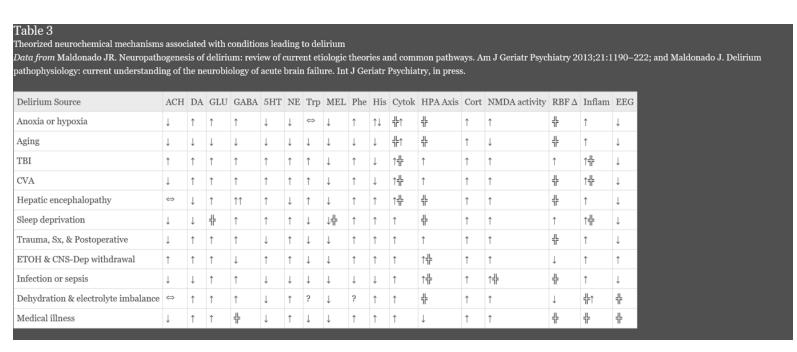
- 71 year old male with myasthenia gravis, major depressive disorder, and MCI, admitted for gastrointestinal bleed, with psychiatry consulted for delirium. He received a COVID nasal swab on admission, which was negative.
- On evaluation, the patient was not interactive, demonstrated psychomotor retardation and rigidity, and would not communicate. When evaluated later, there was noted verbigeration, echolalia, and ambitendency. Nursing staff noted impulsivity and excitement overnight.
- Responded well to Ativan challenge, and BFCS decreased from 24 to 4 in 24 hours.
- However, symptoms then worsened despite
   Ativan titration. He was retested for COVID in
   light of impending inpatient psychiatry transfer,
   and tested positive via 2 nasal swabs. Inpatient
   psychiatry transfer was cancelled.
- Eventually, he was switched to amantadine and Namenda, with good effect. He was discharged to a skilled nursing facility in stable condition.

# Stupor Negativism Mutism Withdrawal Echolalia Gegenhalten Verbigeration Ambitendancy Rigidity Impulsivity

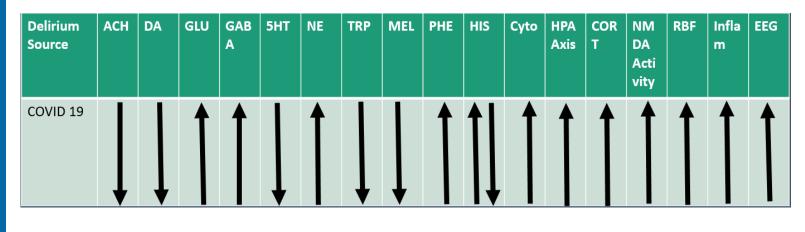
## Discussion

With the onset of the COVID-19 pandemic, multiple neuropsychiatric manifestations of COVID-19 infection have been reported, including catatonia... We theorize based on previous theories about pathology the following:

# Dr. Maldonado's (2013) theorized Neurochemical mechanisms:



# Our theory of Neurochemical mechanism:



# Conclusion

In the cases described, catatonic symptoms appear to be a "herald" for an active COVID-19 infection, even when viral load is too low to be picked up by PCR test. The cases argue for repeated and frequent testing of patients with catatonic symptoms at risk for COVID-19 infection, especially when no primary medical or psychiatric etiology has been identified. **References available upon request.**